Software Engineering Research Infusion ViTS

Topics Discussed

C Global Surveyor (Code IC, IS)→ *Static analysis defect detection tool*

Usability & Architecture (CMU, HDCP)→ *Architecture design methodology*

Code Surfer (commercial)→ *Reverse engineering/debugging toolset*

Perspective-based Inspections (Fraunhofer, SARP)→*Software inspection methodology*

Coverity SWAT (commercial)→ *Static analysis defect detection tool*

Orthogonal Defect Classification (JPL,SARP)→ *Process improvement methodology*

Java Path Explorer (Code IC, IS)→ *Testing tool*

Goal: 2-3 funded collaborations between technology providers and NASA software developers.

HQ

JSC

GRC

160 Registrants
115 Attendees
11 NASA Centers
Audience:
Engineers, Leads, Managers, Quality assurance

Software Engineering
Research Infusion ViTS

- **POC:** Tom Pressburger (ASE group, Code IC, tom.pressburger@nasa.gov)
- Lawrence Markosian (ASE Group, QSS, Code IC, markosian@email.arc.nasa.gov)

- **Background:** The goal of the NASA Software Engineering Initiative, led by the Office of the Chief Engineer (Code AE), is to improve NASA software engineering to meet the challenges of NASA. One of the Initiative's objectives is to infuse software engineering research results into NASA practice. The Research Infusion subgroup of the intercenter SoftwareWorking Group is being led by Tom Pressburger and has focused on bringing NASA-sponsored software engineering research and leading edge commercial tools to the attention of NASA software developers. The subgroup has members from Ames, Goddard, the IV&V facility, JPL and Marshall. The subgroup asked NASA research program managers to suggest their mature research, and the subgroup reviewed and selected several technologies to be presented in a ViTS, a video teleconference presentation. The ViTS was advertised at the NASA centers, and 160 people registered at a website developed by Vance Dubberly of the outreach group.

- **Accomplishment:** On Sept. 23, Lawrence Markosian and Tom Pressburger from the Automated Software Engineering (ASE) group gave the hour long ViTS (video presentation) to an audience of 115 civil servants and contractors, including engineers, leads, managers, and quality assurance personnel, across 11 NASA centers. Markosian presented overviews of seven software engineering technologies. Included were two for software defect detection funded by the Intelligent Systems program, Java Path Explorer and C Global Surveyor, developed within the Automated Software Engineering group in Code IC. Also included were: a commercial tool for code browsing; a commercial tool for scalable defect detection; a technique for improving software inspections; a technique for analyzing defect logs (the latter two funded by the Office of Safety and Mission Software Assurance Research Program (SARP)); and a methodology for ensuring that the architecture of a human-interactive system supports usability, funded by the High Dependability Computing Program. Pressburger described the process for forming collaborations between the software developers and the technology providers. SARP funding is available to support two or three collaborations. The presentation and more information about the technologies are available at http://ic.arc.nasa.gov/researchinfusion/. Audience members have expressed interest in the technologies and the subgroup is proceeding with the review process to establish collaborations.

- **Future Plans:** The subgroup is following up, registering attendees' interests. The subgroup sent a tape of the presentation to Langley, where the hurricane prevented people from attending. The subgroup is now involved in assembling collaborations, and expects to give another such presentation in FY04.